

**BUREAU OF HIGHWAYS
REQUEST FOR PROPOSAL
for
QUALIFICATIONS BASED SELECTION FOR PREQUALIFIED SERVICES**

The Michigan Department of Transportation (MDOT) is seeking professional services for the project contained in the attached scope of services.

If your firm is currently prequalified for this type of work and you are interested in providing services, please indicate your interest by submitting a Proposal. The Proposal must be submitted in accordance with the latest "Vendor Selection Guidelines for Service Contracts", available on the MDOT website.

For efficiency sake, we are asking that the vendor firm provide 3 paper copies of the Proposal to the MDOT project manager named in the attached scope of services.

These copies must be received by 3:00 PM on **February 18, 2005**. Fax and electronic copies are not acceptable.

In addition, provide one unbound copy to:

Regular Mail:

Secretary, Operations Contract Support
Michigan Department of Transportation
P.O. Box 30050
Lansing, MI 48909

OR

Overnight Mail:

Secretary, Operations Contract Support
Michigan Department of Transportation
425 W. Ottawa
Lansing, MI 48933

This copy is to be received within three working days after the due date and time specified above. Please do not deliver in person.

Any questions relative to the scope of services must be submitted by e-mail to the MDOT project manager. Any questions must be asked at least three working days prior to the due date and time specified above. All questions and their answers will be placed on the MDOT website as soon as possible after receipt of the questions. The names of vendors submitting questions will not be disclosed.

For a cost plus fixed fee contract, the selected vendor must have a cost accounting system to support a cost plus fixed fee contract. This type of system has a job-order cost accounting system for the recording and accumulation of costs incurred under its contracts. Each project is assigned a job number so that costs may be segregated and accumulated in the vendor's job-order accounting system.

The selection team will review the information submitted and will select the firm considered most qualified to perform the engineering services based on the proposals. The selected vendor will be contacted to confirm capacity. Upon confirmation, that firm will be asked to prepare a priced proposal. Negotiations will be conducted with the firm selected.

The maximum allowable pages for your proposal shall follow the guidelines detailed in Exhibit F of the Vendor Selection Guidelines (October 2004) for \$25,000 to \$100,000.

For the purposes of this RFP, item 5 of Exhibit F contained in the Vendor Section Guidelines Document, Capacity, will be required as part of the proposal and will be scored.

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal.

The scope of services is attached to this solicitation.

SCOPE OF DESIGN SERVICES

PROJECT LOCATION: US-127 from Bagley Road to Washington Road (US-127 BR at Ithaca), North Star Township, Gratiot County

CONTROL SECTION, JOB NUMBER: CS 29011 – JN 60434

GENERAL INFORMATION

The MDOT Project Manager for this project will be:

Brian E. Atkinson, PE
1212 Corporate Drive
Mt. Pleasant, MI 48858
(989) 775-6104 ext. 316
FAX: (989) 775-6329
Email: atkinsonb@michigan.gov

I Primary Prequalification Classification:

Roadway Rehabilitation & Rural Freeways

II Secondary Prequalification Classification:

Maintaining Traffic Plans and Provisions

The anticipated start date of the service is March 28th, 2005.

The anticipated completion date for the service is July 1st, 2005.

DBE Requirement: 10%.

I. PROJECT LOCATION

The project is located on US-127, from Bagley Road to Washington Road (US-127 BR at Ithaca) in North Star Township in Gratiot County. The project length is 1.74 miles.

II. PROJECT DESCRIPTION

This project consists of all work related to designing this rehabilitation project as **Log Plans** including but not limited to the following: pavement joint and crack repairs, cold milling, HMA paving, drainage improvements, safety improvements including ramp extensions, super elevation corrections, guardrail upgrading, and other miscellaneous items of work.

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Drainage Manual, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

III. SCOPE OF CONSULTANT DUTIES

Complete the design of this project as **Log Plans** including, but not limited, to the following:

- A. Perform miscellaneous design survey pickup.
- B. Perform reviews of all culverts to determine if extensions and/or replacements/repairs are required, prepare any related design drawings, and obtain any required permits.
- C. Determine if design exceptions for super elevation corrections, ramp extensions, etc. will be required, prepare all necessary documents associated with the design exceptions, and submit for approval prior to the Plan Review Meeting.
- D. Prepare required plans, typical cross-sections, details, and specifications required for design and construction.
- E. Compute and verify all plan quantities.
- F. Prepare staging plans and special provisions for maintaining traffic during construction.
- G. Prepare the plans/special provisions for the existing paved Carpool Parking Lot (US-127BR, #529001) to complete HMA resurfacing with pavement markings.
- H. Provide solutions to any unique problems that may arise during the design of this project.

- I. The Consultant may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

IV. PROJECT CONSTRUCTION COST

- A. The estimated cost of construction is:

| | | |
|----|--------------------------------------------------------|--------------------|
| 1. | Safety Related Work | \$219,000 |
| 2. | Base, Surface and Shoulder | \$863,000 |
| 3. | Geometric Improvements | \$60,000 |
| 4. | Bridge Approach Repair | \$360,000 |
| 5. | Drainage Adjustment and Improvement | \$300,000 |
| 6. | Joint Repair and Pavement Patching | \$401,000 |
| 7. | Detours and Maintaining Traffic | \$166,000 |
| 8. | Permanent Pavement Markings | \$11,000 |
| 9. | Miscellaneous (including Carpool Parking Lot Upgrades) | <u>\$405,000</u> |
| | CONSTRUCTION TOTAL | \$2,785,000 |

The above construction total is the amount of funding programmed for this project. The Consultant is expected to design the project within the programmed amount.

If at any time the estimated cost of construction varies by more than 5% of the current programmed amount, then the Consultant will be required to submit a letter justifying the changes in the construction cost estimate.

V. PROJECT SCHEDULE

The scheduled Consultants=s plan completion date for this project is **July 1, 2005**. The Consultant shall use the following events to prepare the proposed implementation schedule as required in the Guidelines for the Preparation of Responses on Assigned Design Services Contracts. These dates shall be used in preparing the Consultant=s Monthly Progress Reports.

Target

| <u>Date</u> | <u>Task #</u> | <u>Description</u> |
|-------------|---------------|-----------------------------------------------------------|
| | 3330 | Conduct Design Survey Pick Up |
| | 3360 | Prepare Base Plans Submit Base Plans |
| | 3380 | Review Base Plans |
| | 3390 | Develop Maintaining Traffic Concepts |
| | 3540 | Develop the Maintaining Traffic Plan |
| | 3560 | Conduct Preliminary Geometric and Roadside Safety Reviews |

| | | |
|---------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 3580 | Develop Preliminary Plans |
| 4/21/05 | | Submit Preliminary Plans |
| 5/05/05 | 3590 | Review Preliminary Plans (The Plan Review) |
| | 3610 | Compile Utility Information |
| | | Utility Meeting (if required) |
| | 3660 | Resolve Utility Issues |
| | 3810 | Conduct Final Geometric and Roadside Safety Reviews |
| | 3830 | Complete the Maintaining Traffic Plan |
| | 3840 | Develop Final Plans and Specifications |
| 6/01/05 | | Submit Final Plan/Proposal Package to MDOT for final review |
| | 3870 | Hold Omissions/Errors Check (OEC) Meeting |
| 6/15/05 | | Omissions/Errors Check (OEC) Meeting (approximate date) |
| 7/01/05 | | Consultant=s Plan Completion: Final Construction Plan/Proposal package with recommendations incorporated to MDOT (one and one-half weeks after OEC Meeting) |
| 7/01/05 | | Final Deliverables to MDOT |

This project will be scheduled for a September 2005 letting.

VI. PAYMENT SCHEDULE

Compensation for this Scope of Design Services shall be on an actual cost plus fixed fee basis.

All invoices/bills for services must be directed to the Department and follow the 'then current' guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's Bulletin Board System. This document contains instructions and forms that must be followed and used for invoicing/billing; payment may be delayed or decreased if the instructions are not followed.

Payment to the Vendor for Services rendered shall not exceed the "Cost Plus Fixed Fee Not to Exceed Maximum Amount" unless an increase is approved in accordance with the contract with the Vendor. All invoices/bills must be submitted within 14 calendar days of the last date of services being performed for that invoice.

Direct expenses will not be paid in excess of that allowed by the Department for its own employees. Supporting documentation must be submitted, with the invoice/bill, for all billable expenses on the Project. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the CE activities of this Project. Hours spent in administrative, clerical, or accounting roles for billing and support, are not considered allowable hours; there will be no reimbursement for these hours.

Reimbursement for overtime hours will be limited to time spent on this project in excess of forty hours per week. Any variations to this rule should be included in the price proposal

VII. MONTHLY PROGRESS REPORT

On the first of each month, the Consultant Project Manager shall submit a monthly project progress report to the Project Manager, **Brian Atkinson**. The monthly progress report shall follow the guidelines in Attachment A.

VIII. FORMAT

Log Plans at 8.5" x 11" will be required. Other Log Plan sheets that are required for this project shall be completed by the Consultant. These include, but are not limited to the following Log Plan sheets:

- A. The title sheet. MDOT will provide a map of the area on a disk in our workstation format. If the map is not available, MDOT will provide a map that could be used. The Consultant shall be responsible for any revisions to the title sheet and the title sheet and map shall meet MDOT format and layout guidelines.
- B. Note Sheet.
- C. Typical Cross-Sections.
- D. Project specific Special Details.
- E. Construction staging and traffic control plans.
- F. Detail grade sheets for major intersections, ramp gores and critical areas.
- G. Paving details.
- H. Culvert detail sheet(s).
- I. Witness and benchmark sheet(s).
- J. Soil boring log sheet(s).

All plans, special provisions, estimates, and other project related items shall meet all MDOT requirements and detailing practices (i.e., format, materials, symbols, patterns, and layout) or as otherwise directed by the Project Manager.

All plans, specifications, and other project related items are subject to review and approval by MDOT.

IX. UTILITIES

The Consultant shall be responsible for obtaining and showing on the plans the location and names of all existing utilities within the limits of the project. In the course of resolving utility conflicts, the Consultant shall make modifications to the plans or design details and provide assistance as directed by the MDOT Utility Permits Engineer and/or Project Manager. The Consultant shall attend any utility meetings called to ensure that the concerns are addressed on the plans involving utilities. The Consultant shall assist in the review of utility permit requests to ensure compatibility with the project.

X. TRAFFIC CONTROL AND MDOT PERMITS

The Consultant shall be responsible for all traffic control required to perform the tasks as outlined in this Project Scope of Design Services.

The Consultant shall be responsible for obtaining up to date access permits and pertinent information for tasks in MDOT Right of Way (ROW). This information can be obtained through Pam Sebenick, Utilities/Permits Section, Real Estate Division at (517) 373-7680

XI. PRE-QUALIFICATION AND SUBCONTRACTING OF CONTRACT WORK

Any task(s) for which the Consultant is not prequalified must be completed by a Subcontractor that is pre-qualified for that task(s). Any questions regarding prequalification should be directed to Phil Brooks, Prequalification Manager, at (517)335-2514.

The Department=s prequalification is not a guarantee or warranty of the subcontractor=s ability to perform or complete the work subcontracted. The Consultant remains fully responsible to the Department for completion of the work according to the authorization as if no portion of it had been subcontracted.

All subcontractor communications with the Department shall be through the Consultant to the MDOT Project Manager. This requirement may be waived if a written communication plan is approved by the MDOT Project Manager.

The Department may direct the immediate removal of any subcontractor working in violation of this subsection. Any costs or damages incurred are assumed by the Consultant by acceptance of the authorization. It is further understood that the Consultant=s responsibilities in the performance of the contract, in case of an approved subcontract, are the same as if the Consultant had handled the work with the Consultant=s own organization.

XII. CONSULTANT RESPONSIBILITIES (GENERAL)

For all P/PMS Tasks, please refer to **Combined Manual** which is listed on the MDOT Bulletin Board System and can be found under the **PPMS** Library. An index of the latest version of the task descriptions along with any revisions is in Attachment "B".

- A. Meet with the MDOT Project Manager to review project, location of data sources and contact persons, and review relevant MDOT operations. The Consultant shall review and clarify project issues, data needs and availability, and the sequence of events and team meetings that are essential to complete the design by the project plan completion date. Attention shall be given to critical target dates that may require a large lead time, such as geotechnical requirements, obtaining permits, design exceptions, utility conflict resolution, local agency meetings, etc.
- B. Maintain a Design Project Record which includes a history of significant events (changes, comments, etc.) which influenced the development of the plans, dates of submittals and receipt of information.
- C. **P/PMS TASK 3330 - CONDUCT DESIGN SURVEY PICK UP**
Perform pickup surveys as necessary to design this project. See the Combined Manual under Attachment C for details. The Consultant=s survey shall be as complete and accurate as necessary to:
 - 1. Calculate and verify plan quantities to the Consultant=s standards.
 - 2. Locate and lay out the future construction of this project.
 - 3. Perpetuate affected property controlling corners for monument preservation.
- D. **P/PMS TASK 3360 - PREPARE BASE PLANS**
See Combined Manual under Attachment C for details.
- E. **P/PMS TASK 3380 - REVIEW BASE PLANS**
See Combined Manual under Attachment C for details.
- F. **P/PMS TASK 3390 - DEVELOP MAINTAINING TRAFFIC CONCEPTS**
See Combined Manual under Attachment C for details.
- G. Perform storm sewer design calculations, including appropriate outlets and energy dissipation if necessary, as outlined in the MDOT Drainage Manual.
- H. **P/PMS TASK 3540 - DEVELOP THE MAINTAINING TRAFFIC PLAN**
See Combined Manual under Attachment C for details.

- I. **P/PMS TASK 3560 – CONDUCT PRELIMINARY GEOMETRIC AND ROADSIDE SAFETY REVIEWS**
See Combined Manual under Attachment C for details.
- J. **P/PMS TASK 3580 - DEVELOP PRELIMINARY PLANS**
See Combined Manual under Attachment C for details.
- K. **P/PMS TASK 3590 – REVIEW PRELIMINARY PLANS (THE PLAN REVIEW)**
See Combined Manual under Attachment C for details.
- L **P/PMS TASK 3610 – COMPILE UTILITY INFORMATION**
See Combined Manual under Attachment C for details.
- M. **P/PMS TASK 3660 – RESOLVE UTILITY ISSUES**
See Combined Manual under Attachment C for details.
- N. **P/PMS TASK 3810 - CONDUCT FINAL GEOMETRIC AND ROADSIDE SAFETY REVIEWS**
See Combined Manual under Attachment C for details.
- O. **P/PMS TASK 3830 - COMPLETE THE MAINTAINING TRAFFIC PLAN**
See Combined Manual under Attachment C for details.
- P. **P/PMS TASK 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS**
See Combined Manual under Attachment C for details.
- Q. **P/PMS TASK 3870 - HOLD OMISSIONS/ERRORS CHECK (OEC) MEETING**
See Combined Manual under Attachment C for details.

R. **P/PMS TASK 5010 - CONSTRUCTION PHASE ENGINEERING AND ASSISTANCE**

The Consultant may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

- S. The Consultant shall be required to prepare and submit a CPM network for the construction of this project. See Attachment D for details
- T. The Consultant representative shall record and submit type-written minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Consultant shall also distribute the minutes to all meeting attendees. MDOT will provide and distribute official meeting minutes for the Base Plan Review Meeting (if meeting necessary) and The Plan Review Meeting.
- U. Attend information meetings (i.e., public hearings, open houses, etc.) with the public and public officials to assist in responding to concerns and questions. May require the preparation of displays such as maps, marked-up plans, etc.
- V. Prepare and submit any information, calculations, hydraulic studies, or drawings required by MDOT for acquiring any permit (i.e. NPDES, DEQ, etc), approvals (ie. county drain commission) and related mitigation. MDOT will submit permit requests.
- W. Attend any project-related meetings as directed by the MDOT Project Manager.
- X. The MDOT Project Manager shall be the official MDOT contact person for the Consultant **and shall be made aware of all communications regarding this project.** The Consultant must either address or send a copy of all correspondence to the MDOT Project Manager. This includes all Subcontractor correspondence and verbal contact records.
- Y. The Consultant shall contact the MDOT Project Manager whenever discoveries or design alternatives have the potential to require changes in the scope, limits, quantities, costs, or right-of-way of the project.
- Z. Print the Special Details.
- AA. Reproduction of 30 sets of base plans, 30 sets of Plan Review plans, and 30 sets of OEC plans is to be performed by the Design Consultant.

XIII. MDOT RESPONSIBILITIES (GENERAL)

- A. Schedule and/or conduct the following:
 - 1. Project related meetings.
 - 2. The Plan Review
 - 3. Utility Meetings.
 - 4. Quantity summary sheets and final item cost estimates.
 - 5. Packaging of plans and proposal.
- B. Furnish pertinent reference materials.
- C. Furnish prints of old plans of the area, if available.
- D. Supply information on existing pavement structure as necessary.
- E. Coordinate any necessary utility relocations.
- F. Furnish pavement core information (Consultant shall place information in the plans).
- G. Furnish soil boring information as necessary (Consultant shall place information in the plans).
- H. Pavement design will be completed by the MDOT Pavement Management Unit of the Bay Region Soils Engineer.
- I. Furnish the MDOT Stand Alone Estimator=s Worksheet (SAEW).

ATTACHMENT A
US-127 from Bagley Road to Washington Road
North Star Township, Gratiot County
CS 29011 – JN 60434

MONTHLY PROGRESS REPORTS

The first two pages of this attachment are the necessary layout of the Monthly progress reports and the last three pages are a completed example.

Control Section 00000
Job Number 00000C
Structure Number S00
Date 00/00/00

MONTHLY PROGRESS REPORT

- A. Work accomplished during the previous month.
- B. Anticipated work items for the upcoming month.
- C. Real or anticipated problems on the project.
- D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.
- E. Items needed from MDOT.
- F. Copy of Verbal Contact Records for the period (attached).

Structure Number - Control Section - Job Number
Route, Location Description
Design Schedule as of 00/00/95

**LIST TASKS, SUBMITTALS, APPROVALS AND MEETINGS AS OUTLINED IN
SCOPE OF DESIGN SERVICES AS NEEDED. THIS LIST IS JUST AN EXAMPLE.**

| Original Authorized Start Date | Original Authorized Finish Date | (Anticipated) or Actual Start Dates | (Anticipated) or Actual Finish Dates | Task | Task Description |
|--------------------------------------|---------------------------------------|--------------------------------------------------|---------------------------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | ?? | Initial project meeting. |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | 3330 | Conduct Design Survey.. |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | 3360 | Prepare Base Plans |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | | Submit Base Plans |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | 3580 | Develop Preliminary Plans |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | 3390 | Develop Construction Zone Traffic Control Concepts |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | 3540 | Develop Construction Zone Traffic Control Plan |
| 00/00/00 | (00/00/00) | 00/00/00 | 00/00/00 | 3550 | Develop Preliminary Traffic Operations Plan. |
| 00/00/00 | (00/00/00) | 00/00/00 | 00/00/00 | 3351 | Review & Submit of Preliminary Right-Of-Way Plans. |
| 00/00/00 | (00/00/00) | 00/00/00 | 00/00/00 | | Submittal of The Plan Review Package. |
| 00/00/00 | (00/00/00) | 00/00/00 | 00/00/00 | | Completion of the Plan Review Meeting. |
| 00/00/00 | (00/00/00) | 00/00/00 | 00/00/00 | 3840 | Develop Final Plans and Specifications |
| 00/00/00 | (00/00/00) | 00/00/00 | 00/00/00 | | Submittal of final plans/proposal package to MDOT for final review. |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | 3870 | Omissions/Errors Check (OEC) Meeting |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | | Consultant=s Plan Completion: Final Construction Plan/Proposal package with recommendations incorporated to MDOT (two weeks after OEC Meeting) |
| 00/00/00 | 00/00/00 | 00/00/00 | 00/00/00 | | Final Deliverables to MDOT |

MONTHLY PROGRESS REPORT

- A. Work accomplished during the previous month.
 - 1. During the last month we completed the Final Right of Way plans and submitted them to Thomas Nelson, Jr. on 05/01/99.
- B. Anticipated work items for the upcoming month.
 - 1. Submit the Preliminary Plans and related material on 03/11/99.
 - 2. Attend the meeting regarding the Ameritech lines on the bridge, scheduled for 03/12/99.
- C. Real or anticipated problems on the project.
 - 1. We foresee no problems at this time.
- D. Update of previously approved detailed project schedule (attached), including explanations for any delays or changes.
 - 1. The design is falling behind schedule because we had problems resolving the geometries of the ramps in relation to the bridge. The Preliminary Plan submittal will be the only task affected by this delay because we will make up the lost time prior to submitting the Final Plans and Specifications.
- E. Items needed from MDOT.
 - 1. Prior to final Plan submittal we will need the latest Special provision and Supplemental Specification checklist.
- F. Copy of Verbal Contact Records for the period (attached).
 - 1. Discussed bridge and ramp geometries with Tom Myers of M\$DOT Traffic and Safety Division on 07-24-95.

SN: S02 - CS: 12345 - JN: 11111C
M-111, from There Village Limits to north of That Road
Design Schedule as of 07/31/95

| Original Authorized Start Date | Original Authorized Finish Date | (Anticipated) or Actual Start Dates | (Anticipated) or Actual Finish Dates | Task | Task Description |
|--------------------------------------|---------------------------------------|--------------------------------------------------|---------------------------------------------------|------|--------------------------------------------------------|
| 01/12/95 | 01/12/95 | 01/12/95 | 01/12/95?? | | Initial project meeting. |
| 01/29/95 | 01/29/95 | 01/30/95 | 01/30/95 3330 | | Conduct Design Survey. |
| 02/17/95 | 04/10/95 | 02/17/95 | 04/20/95 3360 | | Prepare Base Plans. |
| 02/29/95 | 02/29/95 | 02/29/95 | 02/29/95 3390 | | Develop the Construction Zone Traffic Control Concepts |
| 03/12/95 | 03/13/95 | 03/12/95 | (03/30/95) | 3540 | Develop Construction Zone Traffic Control Plan |
| 03/20/95 | 03/19/95 | 03/25/95 | (03/30/95) | 3551 | Develop/Review Preliminary Traffic Signal Plan |
| 07/01/95 | 07/01/95 | (07/01/95) | (07/01/95) | 3590 | The Plan Review Meeting |
| 07/11/95 | 08/11/95 | (07/11/95) | (08/11/95) | 3821 | Complete/Review Traffic Signal Plan |
| 09/15/95 | 09/15/95 | (09/15/95) | (09/15/95) | 3830 | Complete Construction Zone Traffic Control Plan. |
| 09/16/95 | 09/16/95 | (09/16/95) | (09/16/95) | 3840 | Develop Final Plans and Specifications |
| 09/25/95 | 09/23/95 | (09/25/95) | (09/25/95) | 3870 | Omissions/Errors Check (OEC) Meeting |

VERBAL CONTACT RECORD

Control Section 12345
Job Number 11111C
Structure Number S02
Date 07/31/95

Joe Engineer talked to Tom Myers and decided to use a 0.05'/ft super on ramp A leading into the bridge.

ATTACHMENT B
US-127 from Bagley Road to Washington Road
North Star Township, Gratiot County
CS 29011 – JN 60434

P/PMS TASK - INDEX - VERSION 2 rev 2
ISSUED 9/29/2000

| P/PMS TASK | CURRENT DATE | LATEST REVISION DATE |
|----------------------------------------------------------------|---------------------|-----------------------------|
| 3120 - CONDUCT STRUCTURE DECK CONDITION SURVEY | 07/29/99 | |
| 3330 - CONDUCT DESIGN SURVEY | 07/29/99 | |
| 3340 - CONDUCT STRUCTURE SURVEY | 07/29/99 | |
| 3350 - CONDUCT HYDRAULICS SURVEY | 07/29/99 | |
| 3360 - PREPARE BASE PLANS | 06/22/99 | |
| 3361 - REVIEW AND SUBMIT PRELIMINARY RIGHT OF WAY (PROW) PLANS | 07/16/99 | |
| 3370 - PREPARE STRUCTURE STUDY | 06/16/99 | |
| 3380 - REVIEW BASE PLANS | 06/29/99 | |
| 3390 - DEVELOP THE CONSTRUCTION ZONE TRAFFIC CONTROL CONCEPTS | 07/16/99 | |
| 3510 - PERFORM ROADWAY GEOTECHNICAL INVESTIGATION | 07/29/99 | |
| 3520 - CONDUCT HYDROLOGIC, HYDRAULIC AND SCOUR ANALYSES | 08/29/00 | revised per P. Schriener |
| 3530 - CONDUCT FOUNDATION STRUCTURE INVESTIGATION | 07/16/99 | |
| 3540 - DEVELOP CONSTRUCTION ZONE TRAFFIC CONTROL PLAN | 07/16/99 | |
| 3551 - DEVELOP/REVIEW PRELIMINARY TRAFFIC SIGNALS PLAN | 07/16/99 | added to index 1/5/2000 |
| 3552 - DEVELOP PRELIMINARY PERMANENT PAVEMENT MARKING PLAN | 07/16/99 | |
| 3553 - DEVELOP PRELIMINARY NON - FREEWAY SIGNING PLAN | 07/16/99 | |
| 3554 - DEVELOP PRELIMINARY FREEWAY SIGNING PLAN | 07/16/99 | |
| | | |

| P/PMS TASK | CURRENT DATE | LATEST REVISION DATE |
|----------------------------------------------------------------------------------------------------------|---------------------|-----------------------------|
| 3570 - PREPARE PRELIMINARY STRUCTURE PLANS | 07/16/99 | |
| 3580 - DEVELOP PRELIMINARY PLANS | 06/30/99 | |
| 3581 - FINAL RIGHT-OF-WAY PLANS | 07/16/99 | |
| 3590 - REVIEW PRELIMINARY PLANS | 06/29/99 | |
| 3670 - DEVELOP MUNICIPAL UTILITY PLANS | 06/30/99 | |
| 3675 - DEVELOP ELECTRICAL PLANS | 07/01/99 | |
| 3710 - DEVELOP REQUIRED MITIGATION (FOR INFORMATION ONLY, THIS IS NOT A CONSULTANT TASK) | 07/16/99 | |
| 3720 - SUBMIT ENVIRONMENTAL PERMIT APPLICATIONS (FOR INFORMATION ONLY, THIS IS NOT A CONSULTANT TASK) | 07/16/99 | |
| 3821 - COMPLETE/REVIEW TRAFFIC SIGNAL PLANS | 07/16/99 | |
| 3822 - COMPLETE PERMANENT PAVEMENT MARKING PLAN | 07/16/99 | |
| 3823 - COMPLETE NON-FREEWAY SIGNING PLAN | 07/16/99 | |
| 3824 - COMPLETE FREEWAY SIGNING PLAN | 07/16/99 | |
| 3830 - COMPLETE CONSTRUCTION ZONE TRAFFIC CONTROL PLAN | 06/22/99 | |
| 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS | 07/02/99 | |
| 3850 - DEVELOP STRUCTURE FINAL PLANS AND SPECIFICATIONS | 07/29/99 | |
| 3870 - HOLD OMISSIONS/ERRORS CHECK (OEC) MEETING | 07/13/99 | |
| 4120 - OBTAIN PRELIMINARY TITLE COMMITMENTS | 06/29/99 | |
| 4130 - PREPARE MARKED FINAL R.O.W. PLANS | 06/29/99 | |
| 4140 - PREPARE PROPERTY LEGAL INSTRUMENTS | 06/29/99 | |
| 5010 - CONSTRUCTION PHASE ENGINEERING ASSISTANCE | 07/29/99 | |

ATTACHMENT C
US-127 from Bagley Road to Washington Road
North Star Township, Gratiot County
CS 29011 – JN 60434

MDOT COMBINED MANUAL

The MDOT Combined Manual is listed on the MDOT Bulletin Board System and can be found under the PPMS Library. An index of the latest version of the task descriptions along with any revisions will be included as part of this authorization.

ATTACHMENT D
US-127 from Bagley Road to Washington Road
North Star Township, Gratiot County
CS 29011 – JN 60434

CONSTRUCTION CRITICAL PATH NETWORKS

I. INTRODUCTION

The Consultant is required to submit a Construction Critical Path Network at various points in the design process. Refer to the following:

P/PMS TASK 3580 - DEVELOP PRELIMINARY PLANS

P/PMS TASK 3830 - COMPLETE THE MAINTAINING TRAFFIC PLAN

P/PMS TASK 3840 - DEVELOP FINAL PLANS AND SPECIFICATIONS

Construction Critical Path Networks are often needed to develop the progress schedule for a project. They are required on any project designated to include an Incentive/Disincentive or Special Liquidated Damages clause. Construction Critical Path Networks are also recommended for projects with the following characteristics:

1. New construction.
2. Major reconstruction or rehabilitation on an existing roadway that will severely disrupt traffic.
3. Unique or experimental work.
4. More than one construction season.
5. Complex staging (multiple stages with traffic shifts).

As noted in MDOT=s Construction and Technology Instructional Memorandum 1997-7, Progress Schedule Determinations/Critical Path Rates,

Apreparation of a Critical Path is a requirement on all consultant-designed projects, regardless of the project type or complexity.@

The MDOT Resident Engineer assigned to the project should be consulted when developing Construction Critical Path Networks.

MDOT requires the precedence diagramming method. The Consultant will submit this network in MPX version 4.0.

II. NETWORK DEVELOPMENT

The network will be defined using the following steps.

1. Activity definition.
2. Activity sequencing.
3. Duration estimation.
4. Schedule development.

1. ACTIVITY DEFINITION

The Consultant will define the specific activities in enough detail so that the proper objectives will be met. The Consultant must identify assumptions (those factors considered true, real or certain). Supporting detail for the activities should be documented and organized as needed to simplify the review of the activities by MDOT personnel.

The Construction Critical Path Network must start with the ALetting Date@ as the first activity and terminate with the AEnd of Project@ as the finish activity.

A sufficient number of activities will be required with sufficient detail so that the controlling construction operation(s) may be identified. Notation on each activity shall include a brief work description and activity time duration.

2. ACTIVITY SEQUENCING

Activity sequencing involves identifying and documenting interactivity dependencies. The Consultant must sequence activities accurately to support later development of a realistic and achievable construction schedule. Two types of dependencies should be considered. Mandatory dependencies are inherent in the nature of the work being done, such as construction sequencing. Discretionary dependencies are based on knowledge of the work to be done. Constraints are used to show how the activities relate to each. The Consultant must include documentation supporting all discretionary dependencies used in the project. All activities must lead to another activity. Only Start to Start, Finish to Finish and Finish to Start relationships will be allowed. All logic shall show how the given activity is dependent on its preceding activities.

3. DURATION ESTIMATION

After the Consultant has sequenced the activities, the Consultant should determine the activity duration. Activity duration estimating involves assessing the number of work periods likely to be needed to accomplish each activity. Duration (working days): No activity will have a duration greater than 20 working days unless approved by the Engineer. Activities that will be allowed to exceed 20 working days include, but are not limited to, working drawing approvals or other activities not under the control of the

Contractor. If requested by the Engineer, the Consultant shall explain the reasonableness of activity time durations. The approved MDOT production rates will be used in estimating activity duration. These are available in the Supplemental Information section of this attachment. The Consultant must document and submit all assumptions made during the duration estimation to MDOT.

4. SCHEDULE DEVELOPMENT

The activity sequencing, duration estimations and the calendars are combined to create the construction schedule. During the development of the schedule the Consultant will verify:

1. The required schedule to build the project.
2. The constructability of the project.
3. If the maintaining traffic scheme will work.
4. If seasonal limitations will affect the construction.
5. Any other project specific considerations.

The MDOT Calendars will be used by the Consultant in developing the network. The calendars are based on a 4, 5 or 6 day work week. The MDOT Calendars are included in the Supplemental Information section of this attachment.

At this point there should be no negative float in the network. If there is, there is an error in the network and the error must be corrected before network submittal.

All summary tasks shall be removed prior to submittal to MDOT Project Manager

III. DELIVERABLES

After this final step the design consultant will submit the finished CPM schedule to MDOT

1. Documents

- A. 11" x 17" plot of the network. The critical path shall be clearly identified on the plot. A larger plot may be required for complex networks.
- B. Work Day / Completion Date Determination Worksheet.
- C. List of any other assumptions or controlling factors used in creating the network. For example, permit or maintaining traffic restrictions.

2. Electronic Format

This section sets the requirements for the electronic submittal of the Consultant=s Construction Network. All networks shall be submitted on a 3.5 inch floppy disk (or via E-mail) using one of the following formats:

- A. **Standard Electronic Media Format:** This is a standard ASCII text file containing the data elements below, in the order specified. This file can be created using any text editor or word processing application (i.e., MS-Word, WordPerfect, Notepad, Write) but must be saved as an ASCII file.

The **first line** will provide a descriptive header describing the submittal and containing:

Control Section
Job Number
Route
Consultant name
Date of Submittal

The next line will be **blank**, followed by multiple data lines.

Each **data line** will contain one record pertaining to one task of the job. Separate data fields by a comma. Fields within each task line are as follows:

(Note that the term "task" is synonymous with "activity." Leave fields that are not required blank)

- (1) Task # (Job # followed by a hyphen followed by this task's unique 4 digit task number. This is the Preceding Event Activity Code)
- (2) Description of Task, Milestone or Hammock, blank if this record is a constraint
- (3) Calendar (see attached list)
- (4) Duration of task, blank for constraints
- (5) Task # of the next task (Succeeding Event) - leave blank if this record is not a constraint or hammock
- (6) Type of constraint (FS, SS, FF) - leave blank if this record is not a constraint.
- (7) Delay, if required
- (8) Original "Baseline" Start Date
- (9) Original "Baseline" Finish Date
- (10) Current (forecast) Start Date (early start)
- (11) Current (forecast) Finish Date (early finish)
- (12) Estimated completion date (if different from early start + current duration)
- (13) Late Start Date
- (14) Late Finish Date
- (15) Actual Start Date
- (16) Actual Finish Date

Example - each line contains the following:

Task # (preceding event), Description, Calendar, Duration, Next Task # (succeeding event), Constraint Type, Delay, Baseline Start, Baseline Finish, Early Start, Early Finish, Estimated Completion Date, Late Start, Late Finish, Actual Start, Actual Finish, Total Float.

- B. **Primavera Project Planner (P3) 2.0 Export Procedure:** Users who have Primavera Project Planner (P3) version 2.0 can automatically create an export file by following the below export procedure below. **Users having an older version of Primavera may use the applications export feature only if they are able to include all the data elements listed in the version 2.0 format.**

1. Choose Tools, Project Utilities, **EXPORT**
2. Click **ADD**, then click **OK** to accept the next sequential ID number, or type a unique number to identify the specifications and click **OK**
3. Enter a description for the specification in the Title field
4. Specify data items to export

Activities

- Select **Contents of List**
- Use the Description column to specify which data items to export
- To add items, click the right mouse button in the Description column and choose from the list. Suggested Items include: **Activity ID, Activity Description, Actual Start, Actual Finish, Calendar ID, Early Start, Early Finish, Late Start, Late Finish, Original Duration.**
- Select **All Current, All Target, or All Target2**
- Set Description Length to 48

OR

Constraints

- Select **Successor relationships** - Choose this option to export Activity IDs and their corresponding successors only. Lags and relationship types will also be displayed in this output file.

5. Click **FORMAT** in Export Dialog Box
6. In the Output file section, enter a new name and path (ex. A:\actexp or A:\conexp). Do not include a file extension.
7. In the type field, click the minimize button and choose the **[.PRN] - ASCII** file format for the output file.
8. Select **CALENDAR** for Date Format
9. Set ASCII Output Field Separation to **1** and Blank column width to **0**

10. Click **RUN**
11. In the Output Options dialog box, click on **OK**

NOTE: A COMPLETED FILE EXPORT WILL CONSIST OF 2 EXPORT FILES (ACTIVITIES & CONSTRAINTS)

- C. **Microsoft Project Export Procedure:** Users of Microsoft Project Version 4.0 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.
1. Choose File, Save As from the main menu
 2. In the Save File as Type box Select **MPX 4.0**
 3. On the drive box select a: or whichever drive is the 3.5" Floppy drive
 4. Click on **OK**
- This saves the file in MPX format.
- D. **Primavera Sure Track:** Users of Sure Track Version 2.0 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.
1. Choose File, Save As from the main menu
 2. In the filename box input a filename
 3. In the Save File as Type box Select **MPX**
 4. On the drive box select a: or whichever drive is the 3.5" Floppy drive
 5. Click on **OK**
- This saves the file in MPX format
- E. **Scitor Project Scheduler 7 Export Procedure:** Users of Scitor Project Scheduler Version 7 and above can create a Microsoft Project Exchange (MPX) file by following the procedure below.
1. Choose File, Save As from the main menu
 2. In filename box select a filename
 3. In the Save File as Type box Select **MPX**
 4. On the drive box select a: or whichever drive is the 3.5" Floppy drive
 5. Click on **OK**
- This saves the file in MPX format
- F. **Export Files with Other Scheduling Applications:** Most scheduling packages have export functions similar to those described above. If the Consultant chooses to use packages with export capabilities, they shall include all items listed in the Standard Media Format in a text or ASCII type file.

IV. SUPPLEMENTAL INFORMATION

A. MDOT CRITICAL PATH-CONSTRUCTION TIME ESTIMATES

Drainage

Cross Culverts

| | |
|-------------------------------------------------|-------------|
| Rural Highways | 40 m/day |
| Expressways | 50 m/day |
| Large Headwalls | 5 days/unit |
| Slab or Box Culverts | 5 days/pour |
| Plowed in Edge Drain(production type project) | 4500 m/day |
| Open Graded Underdrain(production type project) | 1200 m/day |

Sewers

| | |
|-----------------------------------|-------------|
| 0m-5m(up to 1500mm) | 40 m/day |
| 0m-5m(over 1500mm) | 25 m/day |
| 5m-over(up to 1500mm) | 25 m/day |
| 5m-over(over 1500mm) | 20 m/day |
| Jacked-in-place | 13 m/day |
| including excavation pit & set up | min. 5 days |

Tunnels

| | |
|-----------------------------------|-------------|
| hand mining | 8 m/day |
| machine mining | 20 m/day |
| including excavation pit & set up | min. 5 days |

Manholes

3 units/day

Catch Basin

4 units/day

Utilities

| | |
|--------------------------------------|---------------|
| Water Main(up to 400mm) | 100 m/day |
| Flushing, Testing & Chlorination | 4 days |
| Water Main(500mm-1050mm) | 25 m/day |
| Flushing, Testing & Chlorination | 5 days |
| Order & Deliver 600 mm HP Water Main | 50 days/order |
| Gas Lines | 100 m/day |

Earthwork and Grading

| | Metro Exp | Rural |
|----------------------------------------------|------------------|--------------|
| Embankment(CIP) | 1500 m3/day | 5300 m3/day |
| Excavation and/or Embankment(Freeway) | 1500 m3/day | 9200 m3/day |
| Excavation and/or Embankment(Reconstruction) | 750 m3/day | 3800 m3/day |
| Embankment(Lightweight Fill) | 300 m3/day | 600 m3/day |
| Muck(Excavated Waste & Backfill) | | 1500 m3/day |
| Excavation(Widening) | | 600 m/day |
| Grading(G & DS) | | 750m/day |
| Subbase and Selected Subbase(up to 7.4m) | | 600 m/day |
| Subbase and Selected Subbase(7.4 m & over) | | 450 m/day |

| | |
|-------------------------------------------|--------------------------|
| Subgrade Undercut & Backfill | 1500 m ³ /day |
| Subbase & Open-Graded Drainage Course | 450 m/day |
| Surfacing | |
| Concrete Pavement(7.3m) | 450 m/day |
| Including Forming & Curing | min. 7 days |
| Bituminous Pavement(7.3m) | 1200 m/day/course |
| Concrete Ramps(4.9m) | 300 m/day |
| Including Forming & Curing | min. 7 days |
| Curb(1 side) | 750 m/day |
| Concrete Shoulder-Median | 1200 m ² /day |
| Bituminous Shoulders(1 side per course) | 750 m/day |
| Sidewalk | 180 m ² /day |
| Sidewalk(Patching) | 65 m ² /day |
| Structures | |
| Sheeting(Shallow) | 30 m/day |
| General Excavation at Bridge Site | 750 m ³ /day |
| Excavation for Substructure(Footings) | 1 unit/day |
| Piles(12m) | 15 piles/day |
| Substructure(Piers & Abutments) | 5 days/unit |
| Order and Delivery of Beams | |
| Plate Girders | 100-120 days/order |
| Rolled Beams | 90-120 days/order |
| Concrete Beams | 50 days/order |
| Erection of Structural Steel | 3 days/span |
| Bridge Decks | |
| Form & Place Reinforcement(60m Structure) | 15 days |
| Pour Deck Slab(1 1/5 days/pour) | 2 days/span |
| Cure | 14 days |
| 2 Course Bridge Decks | |
| Add 9 days for Second Course Latex | |
| Add 12 days for Second Course Low Slump | |
| Sidewalks and Railings | |
| Sidewalks and Parapets | 5 days/span |
| Slip Formed Barriers | 2 days/span |
| Clean Up | 10 days |
| Pedestrian Fencing | |
| Shop Plan Approval & Fabrication | 1-2 months |
| Erection | 1 week/bridge |
| Rip Rap Placement | |
| Bucket Dumped | 385 m ³ /day |

| | |
|---------------------------------------------------|------------------------------------------------------------------------|
| Bucket Dumped and Hand Finished | 131-523 m ³ /day |
| Retaining Walls | 1 Panel/day min. 10 days |
| Railroad Structures | |
| Grade Temporary Runaround | 750 m ³ /day |
| Ballast, Ties & Track | 50 m/day |
| Place Deck Plates | 5 days/span |
| Waterproof, Shotcrete & Mastic | 5 days/span |
| Railroad Crossing Reconstruction | 10-15 work days (depends on if concrete base is involved) |
| Temporary Railroad Structures | |
| Order & Deliver Steel | 55 days/order |
| Erect Steel | 1 day/span |
| Ties and Track | 3 days/span |
| Pumphouse | |
| Structure | 30 days/m |
| Order & Deliver Electrical & Mechanical Equipment | 90 days |
| Install Electrical & Mechanical Equipment | 30 days |
| Miscellaneous | |
| Removing Old Pavement | 60 m/day |
| Removing Old Pavement for Recycling(7.3m) | 450 m/day |
| Crushing Old Concrete for 6A or OGDC | 1350 mtons/day |
| Removing Trees(Urban) | 15 units/day |
| Removing Trees(Rural) | 30 units/day |
| Removing Concrete Pavement | 450 m ² /day |
| Removing Sidewalk | 250 m ² /day |
| Removing Curb & Gutter | 450 m/day |
| Removing Bitumin.ous Surface | 1600 m ² /day |
| Conditioning Aggregate | 900 m/day |
| Bituminous Base Stabilizing | 2500 m ² /day |
| Ditching | 600 m/day |
| Trenching for Shoulders | 750 m/day |
| Station Grading | 610 m/day |
| Clearing | 8000 m ² /day |

| | |
|-----------------------------------------------------------------------------|--------------------------|
| Restoration(Topsoil, Seeding, Fertilizer & Mulch) | 1650 m2/day |
| Sodding | 2100 m2/day |
| Seeding | 40000 m2/day |
| Guard Rail | 230 m/day |
| Fence(Woven Wire) | 360 m/day |
| Fence(Chain Link) | 150 m/day |
| Clean Up | 600 m/day |
| Concrete Median Barrier | 300 m/day |
| Cure | min. 7 days |
| Reroute Traffic(Add 4 days if 1st item) | 1 day/move |
| Concrete Glare Screen | 450 m/day |
| Light Foundations | 6 units/day |
| Order & Delivery | 6-8 week/order |
| Remove Railing & Replace with Barrier(1 or 2 decks at a time) | 4 days/side |
| Longitudinal Joint Repair | 1600 m/day |
| Crack Sealing | 4800 m/day |
| Joint and Crack Sealing | 500 m/day |
| Repairing Pavement Joints - Detail 7 or 8 | 200 m/day |
| Seal Coat | 6400 lane m/day |
| Diamond Grinding/Profile Texturing Concrete | 3300 m2/day |
| Rest Area Building | |
| Order Material | 3 months |
| Construct Building | 9 months |
| Tower Lights | |
| Order and Deliver Towers | 100 days |
| Weigh-In-Motion | |
| Order and Deliver Materials | 1 month-6weeks |
| O & D with Installation | 3 months |
| Raised Pavment Markers | 300 each/day |
| Attenuators | 2 each/day |
| Shoulder Corrugations, Ground or Cut | 8 km-9.7 km/side/day |
| Aggregate Base | 2900 m ² /day |
| Aggregate Shoulders | 350 m ³ /day |
| Freeway Signing - 3# Post Type | 50 signs/day |
| Concrete Joint Repair (High Production-Projects with > 1000 patches) | |
| Average(1.8m) | 50 patches/day |
| Large(>1.8m) | 500 m2/day |
| Bridge Painting | 90 m2/day |
| Pin and Hanger Replacement | 3 beams/day |
| Order Pin & Hanger | 60 days |

Bridge Repair

| | |
|--------------------------------------|--------------------------------|
| Scarifying(Including Clean up) | 10000 m2/day |
| Joint Removal(Including Clean up) | 4 m/day |
| Formin.g & Placement | 3.5 m/day |
| Hydro-Demolishing | 300 m/day |
| Barrier Removal | 15 m/day |
| Placement | 45 m/day |
| Hand Chipping (Other than Deck) | .24 m ³ /person/day |
| Shoulder Corrugations, Ground or Cut | 8 km-9.7 km/side/day |
| Casting Latex Overlay | 250 m/day |
| Curing Overlay | |
| Regular | 4 days |
| High Early | 1 day |
| Thrie Beam Retrofit | 30 m/day |
| Beam End Repairs | |
| Welded Repairs | .75 days/repair |
| Bolted Repairs | .50 days/repair |
| Bolted Stiffeners (Pair) | .25 days/repair |
| Grind Beam Ends | .25 days/repair |
| Welded Stiffeners (Pair) | .25 days/repairH- |
| Pedestal Repairs: | |
| Welded Repair | .50 days/each |
| Replacement | 1 day/each |
| Deck Removal | 235 m ² /day |

Surfacing-Bituminous

| | |
|-------------------------------|----------------|
| Metro-Primary(<18000mtons) | |
| Paving | 540 mtons/day |
| Joints | 150 m/day |
| Cold Milling | 3400 m2/day |
| Aggregate Shoulders | 900 mtons/day |
| Metro Primary(>18000mtons) | |
| Paving | 540 mtons/day |
| Joints | 200 m/day |
| Cold Milling | 7500 m2/day |
| Metro Interstate(>18000mtons) | |
| Paving | 1100 mtons/day |
| Joints | 360 m/day |
| Aggregate Shoulders | 900 mtons/day |
| Urban Primary(<18000mtons) | |
| Paving | 640 mtons/day |
| Joints | 100 m/day |
| Cold Milling | 1700 m2/day |

| | | |
|-------------------------------|---------------------|----------------|
| | Rubblizing | 1700 m2/day |
| | Aggregate Shoulders | 450 mtons/day |
| Urban Primary(>18000mtons) | | |
| | Paving | 1000 mtons/day |
| | Joints | 120 m/day |
| | Cold Milling | 1700 m2/day |
| | Aggregate Shoulders | 500 mtons/day |
| Urban Interstate(>18000mtons) | | |
| | Paving | 1200 mtons/day |
| | Joints | 220 m/day |
| | Cold Milling | 1700 m2/day |
| | Rubblizing | 5800 m2/day |
| | Aggregate Shoulders | 640 mtons/day |
| Rural Primary(<18000mtons) | | |
| | Paving | 640 mtons/day |
| | Joints | 120 m/day |
| | Cold Milling | 590 mtons/day |
| | Crush & Shape | 10000 m2/day |
| | Aggregate Shoulders | 640 mtons/day |
| Rural Primary(>18000mtons) | | |
| | Paving | 1100 mtons/day |
| | Joints | 150 m/day |
| | Cold Milling | 800 mtons/day |
| | Crush & Shape | 10000 m2/day |
| Rural Interstate(>18000mtons) | | |
| | Paving | 1280 mtons/day |
| | Joints | 220 m/day |

B. WORKSHEET

WORK DAY/COMPLETION DATE DETERMINATION

CS: _____ JN: _____

DESCRIPTION OF WORK: _____

| MAJOR WORK ITEM | PRODUCTION QUANTITY | RATE | ESTIMATED TIME |
|--------------------|------------------------|------|-------------------|
|--------------------|------------------------|------|-------------------|

[illegible]

TOTAL ESTIMATED TIME:

COMPLETION DATE: _____ (Calendar Days or Work Days)

COMMENTS:

C. MDOT CALENDARS

The following are the MDOT 4, 5 and 6 day calendars:

| CALENDAR | DESCRIPTION | START | FINISH |
|----------|-----------------------------------|------------------|------------------|
| 1 | Std - Apr 16 - Nov 15 - 4 day | APR 16 | NOV 15 |
| 2 | LP - Bit Stab - 4 day | MAY 15 | OCT 15 |
| 3 | UP - Bit Stab - 4 day | JUN 01 | OCT 01 |
| 4 | LP S of M-46 - Bit Pave - 4 day | MAY 05 | NOV 15 |
| 5 | LP N of M-46 - Bit Pave - 4 day | MAY 15 | NOV 01 |
| 6 | UP - Bit Pave - 4 day | JUN 01 | OCT 15 |
| 7 | LP - Bit Seal Coat - 4 day | JUN 01 | SEP 15 |
| 8 | UP - Bit Seal Coat - 4 day | JUN 15 | SEP 01 |
| 9 | Tree Planting - Deciduous - 4 day | MAR 01 OCT 01 | MAY 15 NOV 15 |
| 10 | Tree Planting - Evergreen - 4 day | MAR 01 | JUN 01 |
| 11 | South LP - Restoration - 4 day | MAY 01 | OCT 10 |
| 12 | North LP - Restoration - 4 day | MAY 01 | OCT 01 |
| 13 | UP - Restoration - 4 day | MAY 01 | SEP 20 |
| 14 | Full Year - Winter Work - 4 day | JAN 01 | DEC 31 |
| 21 | Std - Apr 16 - Nov 15 - 5 day | APR 16 | NOV 15 |
| 22 | LP - Bit Stab - 5 day | MAY 15 | OCT 15 |
| 23 | UP - Bit Stab - 5 day | JUN 01 | OCT 01 |
| 24 | LP S of M-46 - Bit Pave - 5 day | MAY 05 | NOV 15 |
| 25 | LP N of M-46 - Bit Pave - 5 day | MAY 15 | NOV 01 |
| 26 | UP - Bit Pave - 5 day | JUN 01 | OCT 15 |
| 27 | LP - Bit Seal Coat - 5 day | JUN 01 | SEP 15 |
| 28 | UP - Bit Seal Coat - 5 day | JUN 15 | SEP 01 |
| 29 | Tree Planting - Deciduous - 5 day | MAR 01 OCT 01 | MAY 01 NOV 15 |

| | | | |
|----|-----------------------------------|--------|--------|
| 30 | Tree Planting - Evergreen - 5 day | MAR 01 | JUN 01 |
| 31 | South LP - Restoration - 5 day | MAY 01 | OCT 10 |
| 32 | North LP - Restoration - 5 day | MAY 01 | OCT 01 |
| 33 | UP - Restoration - 5 day | MAY 01 | SEP 20 |
| 34 | Full Year - Winter Work - 5 day | JAN 01 | DEC 31 |
| 35 | Full Year - Expedited - 6 day | JAN 01 | DEC 31 |